

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application. The language to be added is shown with an underline, and the language to be deleted is shown with a strikethrough.

1. (Currently amended) A transposon-based vector comprising an isolated polynucleotide sequence ~~encoding~~ comprising:

a) a gene operably linked to a first promoter wherein the first promoter is an SV 40 promoter, the gene encoding for a transposase; and,

b) one or more genes of interest encoding for a protein selected from the group consisting of SEQ ID NO: 44, 45 and 46, the one or more genes of interest being operably- linked to one or more additional promoters, ~~wherein~~ the one or more genes of interest and their operably-linked promoters are flanked by transposase insertion sequences recognized by the transposase, and ~~wherein the first promoter and~~ the one or more additional promoters are cell-specific promoters or constitutive promoters.

2. (Currently amended) The transposon-based vector of claim 1, further comprising a cecropin B polyA nucleotide sequence located 3' to the one or more genes of interest.

3. (Currently amended) The transposon-based vector of claim 2, wherein the cecropin B polyA nucleotide sequence is optimized for production of a protein, ~~peptide or nucleic acid~~ encoded by the one or more genes of interest.

4. - 5. (Canceled)

6. (Currently amended) An isolated polynucleotide sequence comprising:

a) one or more genes of interest encoding for a protein selected from the group consisting of SEQ ID NO: 44, 45 and 46, the one or more genes of interest being operably- linked to one or more promoters;

- b) a cecropin B poly A nucleotide sequence located 3' to the one or more genes of interest; and,
- c) transposase insertion sequences recognized by a bacterial transposase, ~~wherein~~ the one or more genes of interest and their operably-linked promoters are flanked by the transposase insertion sequences and the one or more additional promoters are cell-specific promoters or constitutive promoters.

7. – 12. (Canceled)

13. (Withdrawn) A method of providing gene therapy to an animal or a human comprising administering to the animal or the human the transposon-based vector of Claim 1.

14. (Previously presented) The transposon-based vector of claim 1, further comprising at least one of: (a) a Kozak sequence positioned so as to include at least the first codon of the transposase gene; (b) two stop codons operably-linked to the transposase gene; (c) a modified transposase gene sequence, wherein at least one of the first twenty codons of the transposase gene is modified by changing a nucleotide at a third base position of the codon to an adenine or thymine without modifying the amino acid encoded by the codon; or (d) a polyA sequence operably-linked to the transposase gene.

15. (Canceled)

16. (Withdrawn, currently amended) The method of claim 13, further comprising a cecropin B polyA sequence located 3' to the one or more genes of interest.

17. (Withdrawn, currently amended) The method of claim 13, wherein the gene therapy comprises production of a protein, ~~peptide or nucleic acid~~ encoded by the one or more genes of interest in the animal or the human.

18. (Withdrawn) The method of claim 13, wherein the administration is effective to treat a disease or a condition.

19. (Withdrawn) The method of claim 13, wherein the administration of the transposon-based vector results in a transfection efficiency of at least 40%.

20. (Withdrawn) The method of claim 13, wherein the administration occurs through the vascular system.

21. (Canceled)

22. (Previously presented) A composition comprising the transposon-based vector of claim 1 and a carrier suitable for administration to an animal or a human .

23. (Canceled)

24. (Withdrawn) The method of claim 13, wherein the transposon-based vector comprises at least one of: (a) a Kozak sequence positioned so as to include at least the first codon of the transposase gene; (b) two stop codons operably-linked to the transposase gene; (c) a modified transposase gene sequence, wherein at least one of the first twenty codons of the transposase gene is modified by changing a nucleotide at a third base position of the codon to an adenine or thymine without modifying the amino acid encoded by the codon; or (d) a polyA sequence operably-linked to the transposase gene.

25. (Canceled)

26. (New) The transposon-based vector of claim 1, the SV40 promoter being linked at its 3' end to a preprosequence of cecropin B.